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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/262,986	03/05/1999	SHANKAR S. NARAYAN	081862.P133	1274

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EXAMINER	
SINGH, RAMNANDAN P	
ART UNIT	**PAPER NUMBER**
2644	8

DATE MAILED: 04/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/262,986	NARAYAN ET AL.	
	Examiner	Art Unit	
	Ramnandan Singh	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15,17-19 and 24-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-13,15,17-19 and 24-27* is/are allowed.

6)☒ Claim(s) *28,30 and 31* is/are rejected.

7)☒ Claim(s) *29-32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06 February 2004 has been entered.

2. **Status of Claims**

Claims 1, 15, 18 are amended.

Claims 14, 16, 20-23 are cancelled.

Claims 1-13, 15, 17-19, 24-32 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 28, 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al [US 4,689,760] in view of Price et al [US 6,222,910 B1].

Regarding claim 28, Lee et al teach a processor 13 [Fig. 1] to execute a digital computer program to process a sequence of input data (i.e. **a frame of sampled data)** that has been obtained (i.e. **received)** from a coding/decoding process (i.e. **CODEC 18; Fig. 1)** to determine whether any non-voice signal (i.e. **tone)** is likely to be in the sequence of input data [col. 20, lines 28-33; col. 20, lines 59-61];

if it has been determined that anon-voice signal is likely starts to process the sequence to identify any non-voice signal therein [col. 20, lines 44-54]; and ,

while processing the sequence to identify any non-voice signal, if no non-voice signal is identified after having processed a predetermined amount of the input data in the sequence [Fig. 2, **Preliminary validity test fails]**, then stop the processing to identify [i.e. Fig. 2; **go back to receive next frame]**, but if a non-voice signal is

identified , then undistorted data rep[resenting the identified non-voice signal is generated (i.e. **perform a linear prediction coding (LPC) shown in Fig. 2**) to substantially replace a portion of the sequence of input data that contains a distorted non-voice signal [Fig. 2; col. 5, line 60 to col. 6, line 14]. Although it is well-known in the art that a computer includes a storage device, no details about storing the computer program (i.e. code) and data being executed by a computer are shown. So one of ordinary skill in the art would have been motivated to seek any known disk drive or some other standard storage device, capable of accessing computer readable media having executable instructions stored therein, such as the embodiment of Price et al [US 6,222,910 B1] [Fig. 1; col. 7, lines 10-49].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the machine-readable medium having data stored therein of Price et al to Lee et al so as to automatically execute the algorithm [Fig. 2] of Lee et al using the computer program disclosed by Lee et al above to detect non-voice signals in a frame of data.

Regarding claim 30, Lee et al teach detecting DTMF signals in the data [Fig. 2; col. 3, lines 24-27].

Regarding claim 31, Lee at al teach using the data sampled at a frequency of 8 kbit/sec [col. 3, lines 52-58].

Allowable Subject Matter

5. Claims 1-13, 15, 17-19, 24-27 are allowable.

6. Examiner's Statement of Reasons for Allowance:

Independent claim 1 identifies the uniquely distinct feature of digital signal processing of voice and tone signals to detect tone signals in decoded data from a speech coding process. The process comprises subjecting an input sequence of decoded data received from a speech decoder to a first delay, the input sequence having at lest one distorted non-voice sequence representing a non-voice signal; and then subjecting the input sequence of decoded data to a second delay that is longer than the first delay, in response to determining that a non-voice signal is likely to be encountered in a next frame of the decoded data; and then inserting a substantially undistorted non-voice sequence into an output sequence in response to having identified the non-voice signal in the distorted sequence. While Locke [US 5,172,406], Randers [DE 4126 815], and Fujimoto [JP HEI9[1997]-81199] each teach non-voice signal detection, Locke using two delay functions one delay function to an input sequence of decoded data obtained from a speech decoder and another delay function to an input sequence of coded data obtained from a demultiplexer, Randers using one delay buffer, and Fijimoto using a DTMF generator to regenerate a detected DTMF signal with no delay function; none of them apply subjecting an input sequence of

decoded data received from a speech decoder to a first delay, and the subjecting the input sequence of decoded data to a second delay that is longer than the first delay. Thus, they, either singularly or in combination , fail to anticipate or render the above underlined limitation obvious. Therefore, claim 1 is allowable.

Claims 5, 15, and 24 are essentially similar to claim 1 and hence they are also allowable.

Claims 2-4 are dependent from independent claim 1; claims 6-10 dependent from claim 5; claims 17-19 from claim 15; and claims 25-27 dependent from claim 24; and hence they are also allowable.

Independent claim 11 identifies the uniquely distinct feature of digital signal processing of voice and tone signals to detect tone signals in decoded data from a speech coding process. The process comprises: a first buffer output that provides the decoded data in a first in first out (FIFO) manner and a second FIFO buffer; a signal processor to regenerate a non-voice signal ; a first multiplexer having a first input coupled to the first buffer output, a second input coupled to the processor output; a predictor that determines whether a non-voice signal is likely to be in the sequence of decoded data based on values associated with the sequence of decoded data and the characteristics of the speech coding/decoding process; and a second multiplexer having a first input coupled to receive a sequence of decoded data, a second input coupled to

an output of the second buffer portion. While the closest prior art, Grube et al [US 5,539,777] teach a discrete multi-tone decoder connected to a first multiplexer and a second multiplexer, they do not teach having two FIFO buffers, and a predictor that determines whether a non-voice signal is likely to be in the sequence of decoded data based on values associated with the sequence of decoded data and the characteristics of the speech coding/decoding process. Thus, they fail to anticipate or render the above underlined limitation obvious. Therefore, claim 11 is allowable.

Claims 12-13 are allowable due to dependency on claim 11.

7. Claims 29 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 29 is objected to because it inserts a **first delay sequence** of data values into an output data sequence, and a **second delay sequence** into a path taken by the of input data. This has been discussed on detail in paragraph 7 above in reference claim 1.

Claim 32 is also objected to because it is dependent from Claim 29.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (703)308-6270. The examiner can normally be reached on M-F(8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester Isen can be reached on (703)-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ramnandan Singh
Examiner
Art Unit 2644